

**WLPCS**  
**Geometry**

Name: \_\_\_\_\_

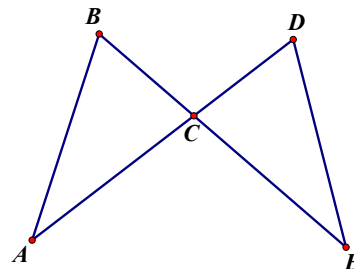
Date: \_\_\_\_\_

Per.: \_\_\_\_\_

**3.6 Introduction to Triangle Proofs**

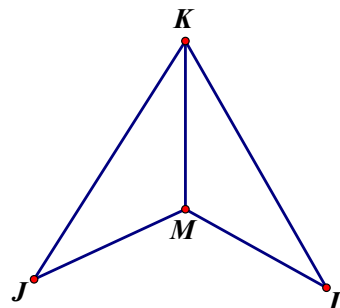
1. Given:  $\overline{BC} \cong \overline{DC}$  ;  $\overline{AC} \cong \overline{EC}$   
Prove:  $\triangle BCA \cong \triangle DCE$

Statements	Reasons
1.	1. Given
2.	2. Vertical $\angle$ s Theorem
3. $\triangle BCA \cong \triangle DCE$	3.



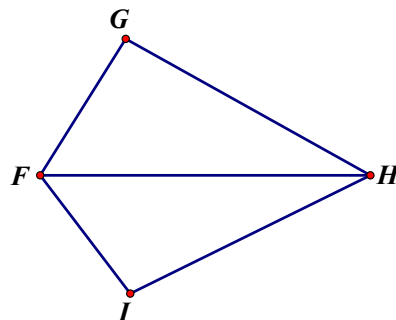
2. Given:  $\overline{JK} \cong \overline{LK}$  ;  $\overline{JM} \cong \overline{LM}$   
Prove:  $\triangle KJM \cong \triangle LKM$

Statements	Reasons
1.	1.
2.	2. Reflexive Prop.
3.	3.



3. Given:  $\angle G \cong \angle I$  ;  $\overline{FH}$  bisects  $\angle GFI$   
Prove:  $\triangle GFH \cong \triangle IFH$

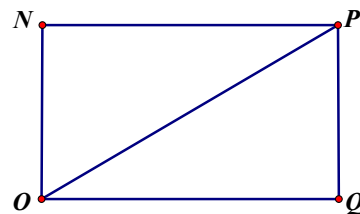
Statements	Reasons
1. $\angle G \cong \angle I$ ; $\overline{FH}$ bisects $\angle GFI$	1.
2. $\angle GFH \cong \angle IFH$	2. Def. of _____
3.	3. Reflexive Prop.
4.	4.



**WLPCS**  
**Geometry**

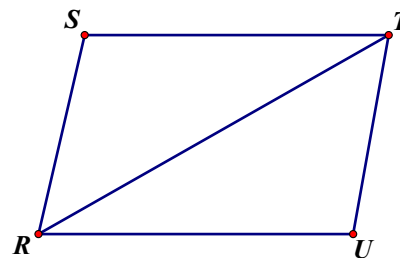
4. Given:  $\angle N$  and  $\angle Q$  are right angles;  $\overline{NO} \cong \overline{PQ}$   
Prove:  $\triangle ONP \cong \triangle PQO$

Statements	Reasons
1. $\angle N$ and $\angle Q$ are right angles	1.
2. $\triangle ONP$ and $\triangle PQO$ are _____ triangles	2. Def. of right triangle
3.	3. Reflexive Prop.
4. $\overline{NO} \cong \overline{PQ}$	4.
5.	5.



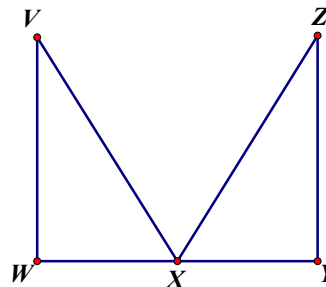
5. Given:  $\overline{ST} \parallel \overline{RU}$ ;  $\overline{SR} \parallel \overline{TU}$   
Prove:  $\triangle SRT \cong \triangle UTR$

Statements	Reasons
1. $\overline{ST} \parallel \overline{RU}$	1.
2.	2. If lines $\parallel$ , alt. int. $\angle s \cong$
3. $\overline{SR} \parallel \overline{TU}$	3.
4. $\angle SRT \cong \angle UTR$	4.
5.	5.
6.	6.



6. Given:  $\angle W$  and  $\angle Y$  are right angles;  $\overline{VX} \cong \overline{ZX}$ ; X is the midpoint of  $\overline{WY}$   
Prove:  $\triangle VWX \cong \triangle ZYX$

Statements	Reasons
1. $\angle W$ and $\angle Y$ are right angles	1.
2.	2. Def. of right triangle
3. $\overline{VX} \cong \overline{ZX}$ ; X is the midpoint of $\overline{WY}$	3.
4.	4. Def. of midpoint
5.	5.

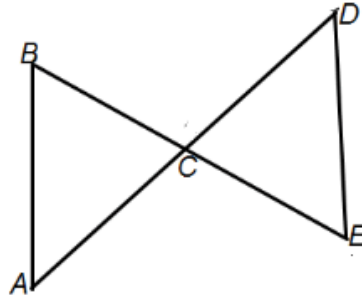


WLPCS  
Geometry

**Given:**  $\overline{BA} \cong \overline{ED}$

$C$  is the midpoint of  $\overline{BE}$  and  $\overline{AD}$

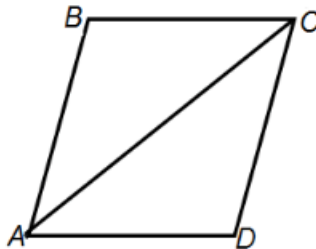
**Prove:**  $\triangle ABC \cong \triangle DEC$



Statement	Reason
1. $\overline{BA} \cong \overline{ED}$	
2. $C$ is the midpoint of $\overline{BE}$ and $\overline{AD}$	
3. $\overline{BC} \cong \overline{EC}$	
4. $\overline{AC} \cong \overline{DC}$	
5. $\triangle ABC \cong \triangle DEC$	

**10. Given:**  $\overline{BC} \cong \overline{DA}$   
 $\overline{AC}$  bisects  $\angle BCD$

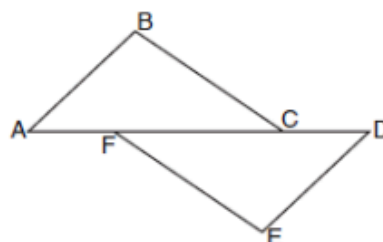
**Prove:**  $\triangle ABC \cong \triangle CDA$



Statement	Reason
1. $\overline{BC} \cong \overline{DA}$	
2. $\overline{AC}$ bisects $\angle BCD$	
3. $\angle BCA \cong \angle DCA$	
4. $\overline{AC} \cong \overline{AC}$	
5. $\triangle ABC \cong \triangle CDA$	

WLPCS  
Geometry

18. Complete the partial proof below for the accompanying diagram by providing reasons for steps 3, 6, 8, and 9.



**Given:**  $\overline{AFCD}$ ,  $\overline{AB} \perp \overline{BC}$ ,  $\overline{DE} \perp \overline{EF}$ ,  $\overline{BC} \parallel \overline{FE}$ ,  $\overline{AB} \cong \overline{DE}$

**Prove:**  $\triangle ABC \cong \triangle DEF$

Statements	Reasons
1 $\overline{AFCD}$	1 Given
2 $\overline{AB} \perp \overline{BC}$ , $\overline{DE} \perp \overline{EF}$	2 Given
3 $\angle B$ and $\angle E$ are right angles.	3
4 $\angle B \cong \angle E$	4 All right angles are congruent.
5 $\overline{BC} \parallel \overline{FE}$	5 Given
6 $\angle BCA \cong \angle EFD$	6
7 $\overline{AB} \cong \overline{DE}$	7 Given
8 $\triangle ABC \cong \triangle DEF$	8